REMARKS

PRIORITY

In paragraph 1 of the above-mentioned Office Action, Applicants' attention is directed to 35 U.S.C. § 120 and 37 CFR 1.78 regarding priority of the prior Application No. 09/687,052, filed October 12, 2000. Such reminder is very much appreciated, and the Specification is being amended to identify the relationship between this Application and the prior Application and also to claim the benefit of that prior Application.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103 – Bell and Papa

In paragraphs 2 and 3, claims 1-11, 13-23, and 25 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. patent number 6,070,207 to Bell ("Bell") in view of U.S patent number 6,324,608 to Papa ("Papa"). The rejection of all claims is traversed. Bell and Papa, either alone or in combination, do not teach, suggest, or make obvious every elements of the claimed invention. The alleged motivation for combining Bell and Papa was improper. Showing a prima facie case of obviousness failed.

Regarding claim 1, because the claimed device is disconnected via the bridge, there exists the disconnection of the bridge from the system and the disconnection of the device from the bridge. Further, while the bridge is still in the attached state, if the bridge recognizing that *the device* has been *removed from the bridge*, then the bridge transition into the cleanup state, then the removed state.

In contrast, Bell discloses the unplugging of only the bus from the computer system. If Bell's bus corresponds to the claimed device, then Bell does not teach a correspondence to the claimed bridge. Similarly, if Bell's bus corresponds to the

claimed bridge, then Bell does not teach a correspondence to the claimed device. If Bell's bus corresponds to the claimed bridge and device as a unit, then, in Bell, there is not the claimed element that "if [the bridge] recognizing that the *device* has been removed from *the bridge*."

If Bell's bus corresponds to the claimed device, and the claimed bridge is considered part of the computer system, then claim 1 is also patentably distinguished from Bell. In this scenario, after the claimed device has been removed from the bridge/computer system, then the bridge/computer system transitions into the cleanup, then removed state. However, Bell's cited paragraph of col. 2, lines 41-51 discloses that while the buses are still plugged into the computer system, the computer system is notified *which bus system* will *be unplugged*, then that bus system is placed in a non-operational mode, and the memory mapped I/O address space is re-mapped to account for removal of that bus system from the computer system. Remapping the memory mapped I/O in Bell corresponds to unplugging the bus system from the computer system because Bell's cited paragraph of column 11, lines 19-25 discloses that, when the I/O address space has been remapped, the computer system provides an indication to the user that *the bus system can be unplugged or disconnected* from the bus system.

In effect, in Bell, while the bus systems are still plugged into the computer system, the bus to be unplugged is notified that it will be unplugged, placed into the non-operational mode, then unplugged from the computer system. That is, the *bus* that corresponds to the claimed device is placed in the non-operational mode while it *is still plugged* into the computer system. The bus in Bell is placed into the non-operational mode so that it can be unplugged from the computer system. In contrast, while *the claimed device has been removed* from the bridge the *bridge* transitions into the cleanup state. In the above analysis, the claimed cleanup state is patentably

distinguished from Bell's non-operational mode for at least the following reasons 1) the claimed device has been removed from the bridge/computer system when the claimed cleanup state occurs wherein Bell's bus is still plugged into the computer system when the non-operational mode occurs and 2) the claimed cleanup state is that of the *bridge/computer system* while Bell's non-operational mode is that of the *bus* or the corresponding claimed *device*, not of Bell's computer system.

Bell's cited paragraph of col. 2, lines 41-67 discloses a method of unplugging a bus system from the computer system wherein while power is applied to the computer system notifying which bus system will be unplugged, providing an indication that the bus system may be unplugged from the computer system and unplugging the bus system. Regarding plugging the bus system into the computer system, a method includes the steps of confirming a communications connection between the computer system and the bus system. The Office Action asserted that "wherein the steps of confirming a communications connection, it is inherently that confirming a communication disconnection as well." This assertion that confirming a communication disconnection is inherent was improper because the mere fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish inherency. Every elements of the claimed invention must be shown.

For the sake of argument that, even if confirming a communication disconnection exists in Bell, the claimed invention includes elements more than such confirmation and not disclosed in Bell. The claimed invention includes interactions between the bridge and the computer system. Recited in claim 1, the following interactions or *ordered steps* are performed: "the bridge sending a first signal to the computer system; in response to the first signal, the computer system sending a second signal to the bridge; and in response to the second signal, the bridge sending a third signal to the computer system . . . ." Bell does not disclose such specific

interactions as recited in the claimed invention. Further, the claimed ordered steps are performed while the claimed bridge is in the *cleanup state*. As discussed above, there is no element in Bell that corresponds to the claimed cleanup state, it is logically impossible for Bell to disclose the claimed ordered-steps in a state corresponding to the claimed cleanup sate. Assume that Bell's non-operational mode corresponds to the claimed cleanup state, then, to be parallel to the claimed invention, the claimed mentioned ordered steps must be performed in the non-operational mode. However, there is no such teaching in Bell.

For the foregoing reasons, Bell does not teach, suggest, or make obvious many elements of the claimed invention. For the 103-rejection using Papa in combination with Bell to stand, Papa must provide those claimed elements not disclosed in Bell. However, Papa does not provide such elements.

The Office Action conceded that Bell does not include the claimed limitation of removing the device from the bridge is performed without giving prior notice to the bridge, nor the computer system. Papa does not provide this limitation, either.

Papa's cited paragraph of col. 7, lines 46-50 discloses "[t]hus, in this embodiment, the bridge . . . acts as a terminator so that the removal and replacement of a network interface module. . . through an electrical removal and insertion is not an electrical disruption on the primary side of the bridge chip . . . ." While this paragraph discloses that removal and insertion of the network module is not an electrical disruption, there is no discussion at all regarding removing the device from the bridge is performed without *giving prior notice* to the *bridge*, nor the *computer system* as in the claimed invention. The assertion that the bridge is not being notified as the removal of the device is inherent was improper. The mere fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish inherency. For example, in Bell, the *bus is notified* before being

disconnected from the computer system. Therefore, it cannot be concluded without

providing evidence that removing the device from the bridge without giving prior

notice is inherent. For the rejection to stand, every elements of the claimed invention

must be shown. Further, the claimed bridge is configured between the claimed device

and computer system, and if Papa's network module corresponds to the claimed

device, then, in Papa, there is no element corresponding to the claimed bridge.

As shown above, Bell and Papa, either alone or in combination, do not teach

every elements of the claimed invention. Further, the alleged motivation for

combining Bell and Papa was improper because while Papa teaches removing the

network interface module without powering down the computer there is no indication

for combining Bell and Papa in either Bell or Papa. Similarly, the assertion that it

would have been obvious to incorporate Papa's teaching into Bell's method so as to

also allow for the removal and replacement without powering down the network

server is a broad conclusory statement without evidence in either Bell or Papa for

combining the two teachings. Showing a prima facie case of obviousness failed.

Based on the foregoing reasons, claim 1 is patentable.

Claims 2-12, depending from claim 1, are patentable for at least the same

reasons as claim 1. Claims 2-12 are also patentable for their additional features, such

as the bridge uses various protocols for the device to communicate with the computer

system, including converting commands of these protocols; the bridge, while in the

cleanup state, provides further signals to the computer system; using a buffer between

the bridge and the device, etc.

Claim 2 recites the further limitation that "the bridge using a first protocol to

communicate with the computer system, and using a second protocol to communicate

with the device." The Office Action asserted that this limitation is disclosed in col. 6,

lines 42-61, and col. 7, lines 8-12 of *Bell*. It is respectfully submitted that the cited

paragraphs disclose a "connection protocol" (col. 6, line 42), or a protocol for checking the connection for Bells' expander ports, which is patentably distinguished from the protocol that enable *communications* between the bridge, the device, and the computer system. Therefore, claim 2 is patentable for this additional reason.

Regarding claim 3, the cited paragraph of column 7, lines 8-13, Bell discusses connection protocols, which is patentably distinguished from the communication protocol of the claimed invention. Further, Bell does not disclose the protocol complying with the SCSI standard, the IDE standard, the fibre channel standard, the IEEE1395 standard or USB standard. Therefore, claim 3 is patentable for this additional reason.

Claim 4 recites the further limitation that "the bridge converting commands of the first protocol and the second protocol." The Office Action asserted that this limitation is disclosed in col. 6, lines 42-61 and col. 8, lines 37-50 of *Bell*. It is respectfully submitted that the cited paragraphs discuss how the *processor* in the computer system of *Bell* "configures each device" (col. 8, lines 40-41) and "configures the MIOC" (col. 8, line 44), which is patentably distinguished from the claimed *bridge* that converts commands of the first protocol and the second protocol for communicating with the device and the computer system. Configuring a device is far from patentably the same as converting commands. Therefore, claim 4 is patentable for this additional reason.

Claim 5 recites the further limitation that "the first protocol is the same as the second protocol." The Office Action asserted that this limitation is disclosed in col. 8 lines 37-50 of *Bell*. It is respectfully submitted that the cited paragraph discuses a processor that writes address mapping information to a register in MIOC to indicate which I/O address range corresponds to each port of MIOC 100. This is patentably distinguished from the claimed communication protocol used by the bridge to

communicate with the device on one side and with the computer system on the other side. Therefore, claim 5 is patentable for this additional reason.

Claim 6 recites the further limitation "while in the cleanup state, if the bridge receives a processing commands, then the bridge sends a fourth signal to the computer system indicating that the bridge cannot process the command." Claim 7 recites the further limitation "while in the cleanup state, the bridges further sends a fifth signal indicating that the command has been terminated," and claim 8 recites the further limitation "while in the cleanup state, the computer system, upon receiving the fourth or the fifth signal from the bridge, provides a sixth signal to indicate that the command cannot be process." The Office Action asserted that these limitations of claims 6, 7, and 8 are disclosed in col. 9 lines 10-21 of *Bell*. However, the cited paragraph discusses that, after processor 10 determines which ports are connected to a bridge or other device, processor 10 can issue a command to cause MIOC 100 to disable the bus drivers for each bus expander port that is not connected to a device. This cited paragraph does not disclose "while in the cleanup state," nor the MIOC sending a "fourth" or a "fifth" signal to the computer system indicating that the bridge cannot process the command or that the command has been terminated, respectively. The cited paragraph does not disclose, the computer system, upon *receiving the fourth or fifth signal* from MIOC, provides a sixth signal to indicate that the command cannot be processed. Disabling the bus drivers is not patentably the same as sending a signal indicating a command cannot be processed or the command has been terminated.

Claim 9, 10, and 11 recite the further limitation a buffer between the device and the bridge for "*protecting the bridge from disruption signals from the device*," (emphasis added), "the buffer prevents the signals passing from the device to the bridge," and "the bridge transitioning to the cleanup state upon recognizing that the

bridge cannot communicate with the device via the buffer," which are not taught, disclosed, or made obvious in the cited paragraphs of col. 10, lines 3-65, col. 2, lines 32-67, and col. 10, line 1-30. Specific showing of elements in Bell or Papa corresponding to the claimed elements is invited.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103 – Bell, Papa, and Mott

In paragraph 4, claims 12 and 24 were rejected under 35 U.S.C. § 103 as being unpatentable over Bell in view of Papa and further in view of U.S patent number 6,574,695 to Mott ("Mott"). The rejection is traversed. Bell, Papa, and Mott, either alone or in combination, do not teach every elements of the claimed invention. The alleged motivation for combing Mott into Bell and Papa was improper. Showing a prima facie of obviousness failed.

For the rejection based on combining Mott with Bell and Papa to stand, Mott must teach every element not taught in Bell and Papa discussed above. However, Mott does not teach such elements.

The Office Action conceded that Bell does not disclose the claimed feature wherein the bridge recognizes that the device has been removed from the bridge based on a signal asserted at a control pin of the bridge; and the signal changes when the control pin is engaged or disengaged from a control pin of the device. However, Mott does not provide this feature, either.

Reciting Mott's paragraph of column 4, lines 50-65, the Office Action asserted that "Mott discloses all of the hot swap levels required staged connector pins. Each pin has one of the three lengths: long, medium, or short. The long pins are used for power and ground connections and medium pins are bus signals and short pin indicates the board in inserted." While this assertion was true, it is patentably distinguished from the claimed element. Mott's cited paragraph discusses a board

being *inserted* while the claimed feature relates to the device being *removed* from the bridge. Both Mott's cited paragraph and the assertion do not teach the bridge, the bridge recognizes that the device has been removed from the bridge *based on a signal asserted at a control pin of the bridge*, etc. Further, the alleged motivation to incorporate Mott's teaching with Bell's method so as to provide an easy and inexpensive mechanism for enabling hot swapping while allowing existing devices and device drivers to be used was improper because while it was a cited statement from Mott, there is not any indication in either Bell or Mott that suggests combining the teaching of Bell and Mott. As a result, claim 12 is patentable for the-above discussed reasons.

Claims 13-24, reciting limitations corresponding to claims 1-12, are patentable for at least the same reasons as claim 1-12.

Regarding claim 25, Bell's cited paragraphs of column 3 lines 32-35 and column 2, lines 32-67 disclose the memory and I/O bridge controller (MIOC) connected to host bus 60 for interfacing external buses and memory system 60 to host bus 60 or processors 10/computer system. In effect, Bell discloses only three elements, e.g., the processor/computer system, the MIOC, and the bus system. In contrast, in claim 25, the computer system is coupled to claimed bridge, which is coupled to a claimed buffer, and which, in turns, is coupled to the claimed device. The illustrative embodiment of FIG. 5 shows the computer system, the bridge, the buffer, and the device as 185, 170, 190, and 140, respectively. In effect, there are four elements in claim 25. Therefore, in this regard, Bell does not disclose every elements of the claimed invention. Regarding the claimed elements related to the attached cleanup state, and while in the cleanup state the bridge and the system sending the signals to each other, the claimed invention is patentably distinguished from Bell as discussed above. As a result, claim 25 is patentable.

SUMMARY

In conclusion, it is respectfully submit that pending claims 1-25 clearly present subject matter that is patentable over the prior art of record, and therefore withdrawal of the rejections and issuance of the Application is respectfully solicited.

Respectfully submitted,

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